

DESCRIPTIONS OF TWENTY-EIGHT SPECIES OF GASTROPODA
FROM THE PERSIAN GULF, GULF OF OMAN, AND ARABIAN
SEA, DREDGED BY MR. F. W. TOWNSEND, OF THE INDO-
EUROPEAN TELEGRAPH SERVICE, 1900-1904.

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PLATE X.

IN offering another contribution towards the elucidation of the molluscan fauna of the Persian Gulf and contiguous seas, I would point out that, as was the case in my last paper on the subject,¹ nine-tenths of the following small and abyssal species were extracted from sifted sand, dredged at one prolific station. Already nearly one hundred species, new to science, have resulted from this gathering, and the quota is not, even yet, exhausted. A good many dubious specimens and imperfect, broken examples of strange forms, as might be expected, also occur, which are, naturally, not considered, but this fact only serves to emphasize the more than probability of the supposition that these explorations have so far only touched the threshold of benthal life, and that these hitherto scarcely known seas possess within their profounder recesses many wonderful forms, waiting to be revealed some day.

We have not had time as yet thoroughly to diagnose the Pelecypoda of this region, but Mr. R. Standen and I hope to complete the catalogue before very long, and likewise, at the same time, to give emended lists of some of the leading Gastropod families.

Except where otherwise stated, all the species are from the Gulf of Oman, lat. 24° 58' N., long. 56° 54' E., 156 fathoms.

CYCLOSTREMA EUMARES,² n.sp. Pl. X, Figs. 1, 1a.

C. testa minuta, umbilicata, tenui, alba, nitida, lævi, anfractibus 3-4, quorum duo apicales, læves, globulosi, cæteris ad suturas paululum excavatis, tumidis, ultimo permagno, supra lævi, versus basim longitudinaliter sub lente scalpto-striato, regione umbilicari, spiraliter trilirata, excavata, crenulata, liris longitudinalibus decussata, apertura rotunda, peristomate tenui, continuo. Alt. 1, diam. 1.75 mm.

Very small, and perhaps not full-grown. Several examples occurred, one possessing a linguiform appendage to the peristome, slightly

¹ Proc. Mal. Soc., vol. vi, pt. 1, pp. 51-60, pl. v.

² εὐμαρής, well-adapted, gentle.

covering the umbilical region, which is excavate, thrice spirally lirata, decussate and crenulate at the points of junction of the longitudinal liræ, beyond these spiral lirations the base is scratched with what may be incremental lines of growth, the rest of the surface is white, smooth, and shining. Allied to *C. sulcatum*, Watson,¹ from Pernambuco, 675 fathoms.

CYCLOSTREMA EUPOIETUM,² n.sp. Pl. X, Fig. 2.

C. testa parva, compacta, alba, solidula, obtecte umbilicata, parum nitente, anfractibus 4, apicali parvo, simplice, subhyalino, cæteris, præcipue penultimo atque ultimo spiraliter arcissime lirato-sulcatis, penultimi liris sub lente fortiter punctatis, ultimo ad basim circa umbilicum crenellifero, crenellis magnis, paucis, apertura rotunda, peristomate tenui, continuo, umbilicum fere obtegente. Alt. 1, diam. 1.2 mm., sp. min.; alt. 1.5, diam. 2 mm., sp. max.

Several examples of a small, narrowly umbilicate shell, four-whorled, the two last being very closely spirally lirately furrowed, the penultimate minutely puncto-striate. The crenellations round the half-covered umbilicus are large in proportion to the size of the shell. Mouth round, peristome continuous, hardly thickened, a tongue-shaped process, lirato-sulcate as is the rest of the surface, extending over the umbilical region. In the absence of the operculum and soft parts this species seems best included in *Cyclostrema*, Marryat, a genus that badly needs revision, but, speaking on conchological grounds alone, it appears allied to certain *Leptothyra* in several particulars.

ETHALIA JUCUNDA, n.sp. Pl. X, Figs. 3, 3a.

E. testa minuta, depressa, alba, nitida, imprimis perforata, deinde callifero, callo magnopere umbilicum obtegente, anfractibus 4, apicali parvo, vitreo, ultimo rapide accrescente, ad peripheriam rotundato, omnibus nitidis, lævissimis, apertura ovato-rotunda, peristomate intus maxime incrassato.

Var. carinulata, n.var.

Testa ut supra, sed undique spiraliter ante striatula, ad peripheriam sæpius subangulato, basi circa umbilicum paullum excavata. Alt. .75, diam. 1.75 mm., sp. maj.

An exceedingly small, but particularly interesting *Ethalia*, its nearest allies being *E. reclusa*, Dall, *E. diaphana* (D'Orb.), and perhaps *E. suppressa*, Dall,³ the first and the last of these having been obtained during the "Blake" Expedition. It is not among the common species in the above locality; I have, indeed, only seen about a dozen examples, and amongst them the var. *carinulata* predominated. The smooth form, which I have considered most typical, however, is slightly larger, and decidedly adult. Here no striation is perceptible with aid of the very

¹ Cf. Report "Challenger" Expedition, vol. xv, p. 121, pl. viii, figs. 11a-c.

² εὐποίητος, well-formed.

³ Bull. Mus. Comp. Zool. Harvard Coll., xxix, pt. 2, pp. 361, 362, pl. xxviii, figs. 7, 8.

strongest power. It is possible I am joining two species, but, until a larger series is obtained, I am persuaded this is the wiser course. The basal sculpture of the var. *carinulata*, below the somewhat carinate periphery, is very distinct in some examples, but others show a more marked columellar callus, and a consequent transition towards the typical form. I am under much obligation to Dr. W. H. Dall for his opinion as to the location of this species. He wrote me as follows:—"This belongs to the section or subgenus of *Ethalia* or *Teinostoma* which Conrad named *Solariorbis*. In the 'Blake' report I included some species under *Ethalia*, but they are closely related to *Teinostoma* also, and, until we know something about the operculum and animals, it is impossible to make a final classification of these curious little shells."

BASILISSA (*ANCISTROBASIS*) *COMPSA*,¹ n.sp. Pl. X, Fig. 4.

B. testa parva, conica, anguste umbilicata, albida, delicata, anfractibus 6, apicali vitreo, globulari, cæteris ad suturas impressis, simul ac ad peripheriam, et profunde alveatis, supernis binis, penultimo tribus, ultimo supra peripheriam quatuor liris spiralibus præditis, undique longitudinaliter arctissime et suboblique decussato-liratis, interstitiis quadratis, ultimo ad peripheriam bicarinulato, crenellifero, simul ac circa umbilicum, basi planato, trochiformi, liris concentricis 8-9 decorato, interstitiis spiraliter minutissime punctatis vel alveolatis, apertura subquadrata, labro tenui, concavo, columella ad medium et ad basim sinuata, excavata, utrinque incrassata, prominula. Alt. 2.25, diam. 2 mm.

The smallest of the few described species of this abyssal genus. Its chief affinity would seem to lie with *B. alta*, var. *oxytoma*, Watson, from the Gulf of Mexico, as regards size and form, but the sculpture is quite different, and the grooved excavate callosity of the columellar and basal regions shows it really belongs to the section *Ancistrobasis*, Dall. All the original material for this genus, described by the Rev. R. Boog Watson² in 1879, consisted of specimens not quite adult, and accordingly an emended diagnosis was found necessary by Dr. Dall³ a few years later (1889).

SCISSURELLA JACKSONI, n.sp. Pl. X, Fig. 5.

S. testa parva, profunde umbilicata, oblongo-ovata, undique alba, tenuissime delicata, anfractibus 5, quorum apicalis parvus, globularis, hyalinus, cæteris ad medium bicarinatis, suturis compressis, arctissime omnino longitudinaliter liratis, liris supra carinas curvatis, infra rectis, ultimo anfractu infra, usque ad basim, obscure spiraliter striato, inter carinas sinu angusto, sed longo, apertura rotunda, labro ad sinum paullum incrassato, margine columellari supra umbilicum in speciminibus quibusdam extenso. Alt. 1.75, diam. 1.75 mm.

¹ *κῶμπος*, elegant.

² Rep. "Challenger" Exped., vol. xv, p. 100.

³ Bull. Mus. Comp. Zool. Harvard, xxix, p. 383.

The most frequent of the three species found together in the above locality. It seems almost intermediate between *S. alta* and *aëdonia*, both of Watson,¹ from the Azores and Pernambuco respectively; but is quite distinct from either. The rarer species associated with it are *S. ætheria*, M. & S., and what seems to be *S. coronata*, Watson,² the type of which came from Tahiti. I have especial pleasure in naming this beautiful little mollusk after Mr. John Wilfrid Jackson, who has given much needed assistance in sorting the dredged material, and was the first to extract this species therefrom.

CERITHIUM ANEMBATUM,³ n.sp. Pl. X, Fig. 6.

C. testa parva, fusiformi, solidula, pallide albo-fusca, anfractibus 12, quorum apicales 4, vitrei, nitidi, læte ochracei, sub lente spiraliter unicarinati, cæteris apud suturas impressis, quatuor supernis spiraliter tri-, tribus his proximis quadri-liratis, liris papillois, ultimo anfractu 8-10 lirato, apertura ovato-rotunda, labro tenui, canali brevi. Long. 5, lat. 1.50 mm.

A very small species, but I think quite adult. The apical whorls are shining, ochraceous, once spirally keeled, the remainder being papillosely transversely lirate. It is not very frequent in siftings from the above dredging.

CERITHIUM PERVICAX, n.sp. Pl. X, Fig. 7.

C. testa minuta, albida, interdum pallide fusca, delicata, anfractibus 9-10, quorum 3-4 apicales, ochraceo-fusci, nitidi, læves, sub lente forte ad medium unicarinati, cæteris ad suturas multum impressis, gradatulis, nequaquam varicosis, supernis spiraliter bi-, ultimistriseriatis, gemmulatis, ultimo infra peripheriam unicarinato, apertura subrotunda, labro tenui, marginem apud columellarem nitido, crassiusculo, canali brevissimo. Long. 3, lat. 1 mm.

My coadjutor (Mr. R. Standen) and I, in describing *Cerithium verecundum*,⁴ mentioned this as but a form of that shell. A closer research has satisfied me as to its specific difference. Much smaller than *C. verecundum*, long. 3 as against 4.20 mm., it is broader in proportion, and no trace of varices is to be seen. The mouth is rounder, not prolonged towards the base, the canal remarkably short. It is as abundant in shell-sand from the above locality as its nearly allied species is scarce. Of the true *C. verecundum* I have not noticed more than twelve examples, as against two hundred or more of *C. pervicax*.

BITIUM CAUDATUM, n.sp. Pl. X, Fig. 8.

B. testa minutissima, cylindrica, solidula, pallide brunnea, apud apicem multum attenuata, anfractibus 10, quorum apicales 4 nunc

¹ Rep. "Challenger" Exped., vol. xv, pp. 114, 115, pl. viii, figs. 1, 3.

² I.c., p. 114, pl. viii, fig. 4.

³ ἀνέμβατος, inaccessible.

⁴ Ann. & Mag. Nat. Hist., ser. vii, vol. xii, p. 300.

caudati, perlæves, fusco-vitrei, nunc subdistorti, delicate striati, cæteris cylindraceis, spiraliter triliratis, liris papilloso-gemmatis, ultimo anfractu quadrilrato, apertura subrotunda, labro tenui, canali brevi. Long. 2, lat. 1 mm.

One of the smallest of mollusks, peculiar for its very attenuate, caudate apex; the sculpture of the shell is normal; the nearest approaches to it seem to be *Cerithiopsis ridicula* and *turrigera*,¹ Watson. From the first of these it differs in its coloured apical whorls, those of *ridicula* being white, with only seven whorls in all, as against nine in the present species. *C. turrigera* is more remotely allied, its ornamentation consisting of only two spiral rows of gemmate liræ. It is often hard to know where *Bittium* begins and *Cerithiopsis* ends; *C. ridicula*, especially, looks like one of the former genus, and as such I, for my part, would classify it.

TRIFORA CONCATENATA, n.sp. Pl. X, Fig. 9.

T. testa pergracili, multum attenuata, albescente, albo-fusca, anfractibus ad 18, quorum apicales 4, ochracei, spiraliter unicarinati, arcte et pulcherrime sub lente longitudinaliter lirati, liris sinuosis, cæteris rectis, suturis indistinctis, tribus gemmularum ordinibus concatenatis præditis, gemmulis rotundis, nitentibus, ultimo anfractu quatuor ordinibus, circa basim angulato, apertura rotundo-ovata, labro simplice, canali brevi. Long. 5, lat. 1 mm., sp. max.

A small, very gracefully attenuate species, white or whitish-drab, with ochreous apical whorls, these being once keeled spirally, the usual pattern being present on the remaining whorls of three rows of round, shining gemmæ—four on the body-whorl, the lowest row being the largest; these spiral rows are more or less concatenate, leaving clear spaces between.

TURBONILLA INÆQUALIS, n.sp. Pl. X, Fig. 10.

T. testa pergracili, nitida, albida, lævissima, anfractibus 9, quorum apicales duo magnopere heterostrophii, vitrei, pellucetes, globosi, cæteris gradatulis, nitidis, interdum inæqualibus et quasi-varicosis, costulis longitudinalibus lævibus, rectis, præditis, ultimo anfractu fere recto, costulis versus basim evanidis, apertura ovali, labro tenui, margine columellari paululum incrassato. Long. 5, lat. 1.15 mm.

Peculiar for its often exhibiting pseudo-varices, these being simply unequally effuse longitudinal ribs. The surface of the shell is remarkably smooth, white, and shining, the mouth a perfect oval, and the heterostrophe apex glassy, globular, and completely reversed. *T. Peronii*, Vélain, from St. Paul's Island, Indian Ocean, seems akin.

TURBONILLA MICROPERONE,² n.sp. Pl. X, Fig. 11.

T. testa fusiformi, curta, albescente, paulum incrassata, anfractibus 9, ventricosis, undique arcte costulatis, costis crassis, obliquis, numero

¹ Rep. Challenger Exped., vol. xv, pp. 528, 529, pl. xxxviii, figs. 1, 2.

² μικρος, small; περόνη, a pin.

anfractum apud ultimum circa 18, ultimo curto, compressulo, apertura subrotunda, labro tenui. Long. 4, lat. 1 mm.

A well-marked, but hardly common form. There are several other species of this difficult genus and its immediate allies from the same locality, many of which we have elected, at present, to consider forms of such common *Turbonilla* as *T. sororia*, *terebrina*, or *basilica*, Melv. It is indeed a thankless and almost hopeless task to thoroughly sort out even, much less attempt to classify, a large gathering of such a genus as this; especially as the fact should not be lost sight of that very probably there are sexual differences to be considered, affecting both form and texture of shell.

TURBONILLA RECTICOSTATA, n.sp. Pl. X, Fig. 12.

T. testa eleganter fusiformi, gracili, alba, parum nitente, tenui, anfractibus (inclusis apicalibus 2 reversis, globulosis, heterostrophis, subvitreis) 11-12, apud suturas impressis, paullum gradatulis, undique longitudinaliter costatis, costis rectis, paullum incrassatis, interstitiis omnino lævibus, ad basim anfractus ultimi evanidis, numero circa 16, apertura ovata, labro tenui, fere continuo, columella obscure plicata. Long. 6, lat. 1.50 mm.

I think this *Turbonilla* quite distinct from the larger and coarser *T. candida*, H. & A. Adams, which occurs in the Persian Gulf likewise. The apical whorls are more conspicuously reversedly coils in *T. recticostata*, the whorls are more gradate, the ribs perfectly straight throughout; on the upper whorls of *candida* they are closer and suboblique, and likewise fewer in number. It is one of the less frequent forms; seven or eight examples alone have yet come to light.

MUCRONALIA OXYTENES,¹ n.sp. Pl. X, Fig. 13.

M. testa oblonga, parva, albo-vitrea, nitidissima, polita, anfractibus 7, quorum apicales 3, contracti, angusti, mucronati, semipellucentes, cæteris latioribus, cylindricis, infra, juxta suturas, spiraliter interne pellucido-zonatis, apertura anguste ovata, labro simplice, tenui, columella obliqua. Long. 3.75, lat. 2 mm.

The nearest approach I have seen to this species, of which but three or four specimens alone have so far occurred in the above locality, is *M. cylindrica*, Sowb.,² from Cebu, Philippines, a shell twice the length, more pellucid, and with more arched and flexuose lip.

Another *Mucronalia* has been noticed to occur with the foregoing, but in too imperfect a condition to diagnose.

MITRA TOWNSENDI, n.sp. Pl. X, Fig. 14.

M. testa oblongo-fusiformi, solida, læte castaneo-brunnea, anfractibus 8, quorum apicales duo, cæteris apud suturas paullum impressis, fere rectis, undique spiraliter arcte punctatis, punctis minutis, apertura oblonga, intus nitida, brunneo-livescens, labro paullum effuso, columella albo-livida, 5 plicata. Long. 30, lat. 10 mm.

¹ ὀξύτης, sharply drawn to a point, in allusion to the three apical whorls.

² Proc. Mal. Soc., vol. iv (1900), p. 127, pl. xi, fig. 6.

Hab.—Persian Gulf, Muskat, 7–30 fathoms.

This *Mitra*, of a warm chestnut colour, plain in form, belongs to the same group of the genus as the West American *M. caliginosa*, Reeve, *maura*, Swains., *Idæ*, Melv., etc. There is likewise some affinity to *M. picta*, Reeve. It was very uncommon in the above locality, and it affords me much pleasure to suggest for it the name of its discoverer, Mr. Frederick W. Townsend.

PLEUROTOMA (OLIGOTOMA) PATRICIA, n.sp. Pl. X, Fig. 15.

Pl. testa oblongo-fusiformi, alba, solidula, anfractibus 9, quorum apicales 2 parvi, apice ipso acuminato, huic duobus vel tribus proximis tumidis, longitudinaliter costulatis, costulis prominulis, albis, margaritaceis, nitidulis, cæteris anfractibus apud suturas, simul ac apud medium, arcuissime carinatis, carinis interdum irregularibus, superficie longitudinaliter incurvistrata, ultimo anfractu supra medium carinato, dein usque ad basim 8–10 conspicue spiraliter lirato, liris lævibus, nitidulis, superficie interstitiali arcu striata, apertura oblonga, labro tenui, sinu lato sed non profundo, canali brevi. Long. 5, lat. 2 mm.

Ten or twelve examples of a very beautiful, acutely spirally carinate little *Pleurotoma*, the third and fourth whorls being curiously swollen and conspicuously ribbed, the lower whorls acutely keeled, the body-whorl, below the carination, many-lirate. It is evidently of the same alliance as *P. violaceus*, Hinds, *P. makemonos*, Jouss., and *P. Pouloensis*, Jouss., all from the Persian Gulf region, and I have likewise compared it with description and figure of two unique and obscure species of the latter author, viz., *P. Clevei* and *Bellardi*, Jouss. These are both evidently very nearly allied both to each other and to our species, which differs, however, not only as regards the tumid upper whorls, as above mentioned, but likewise in size, being only half the dimensions of the other species mentioned. Some affinity likewise exists with *P. fusca*, Hombr. & Jacq. (= *gemmata*, Hinds), also found in the same dredging in abundance, but this species is also larger, and conspicuously moniliform. *P. tiara*, Watson,¹ is also a near congener. This is a New World deep-sea form. *Drillia* (or ? *Mangilia*) *subsida*, Dall,² from the West Indies, has also many points in common.

PLEUROTOMA (SURCULA) HALICYRIA,³ n.sp. Pl. X, Fig. 16.

P. testa fusiformi, tenui, sordide alba, subhyalina, anfractibus 9, quorum 1½ apicales, globulosi, læves, vitrei, apice ipso fere immerso, cæteris ad suturas maxime impressis, nitidis, fere lævibus, ad medium fortiter angulatis, longitudinaliter obliqui-costatis, costis nitidis, crassiusculis, supra, juxta suturas fere evanidis, simul ac anfractu ultimo infra peripheriam versus basim, numero circa 15, ultimo et penultimo infra spiraliter liratis, liris obscuris, inconspicuis; apertura oblonga, infra contracta, labro tenuissimo, sinu rotundo, lato, sed non

¹ Rep. Challenger Exped., vol. xv, p. 347, pl. xxi, fig. 7.

² Bull. Mus. Comp. Zool. Harvard, xviii, p. 118, pl. xii, fig. 3.

³ ἁλς, κυρία, a mistress of the sea.

profundo, columella tenuiter callosa, alba, nitente, canali producto, lato. Long. 32, lat. 10 mm.

Hab.—Gulf of Oman, lat. $24^{\circ} 49' N.$, long. $56^{\circ} 56' E.$, 225 fathoms, mud bottom, October 26th, 1900.

Only one example occurred of a *Surcula*, delicate in texture, possessing all the attributes of an abyssal species, but with some resemblance to *P. (Surcula) undatiruga*, Bivona (= *tenuis*, Gray), from the Mediterranean. That species, however, is nodulous on the angles, with far more frequent and very sinuous thin longitudinal ribs. Some similarity to *P. (Surcula) symbiotes*, Wood-Mason & Alcock, may likewise be traced. This species came from South Indian seas, lat. $7^{\circ} 04' N.$, long. $76^{\circ} 34' 15'' E.$, in 1043 fathoms,¹ and is a larger shell, 57 mm. in length, and a great deal broader in proportion, say 19 diam., the canal being not so produced, and the whorls far more compressed suturally.

CLATHURELLA POLYHYMNIA,² n.sp. Pl. X, Fig. 17.

Cl. testa oblongo-fusiformi, tenui, pallide ochracea vel alba, anfractibus 8, quorum apicales 2 vitrei, bulbosi, cæteris ventricosus quadrato-decussatis, ad juncturas lirarum gemmatis, gemmis nitentibus, interstitiis alveolatis, apertura oblonga, labro incrassato, intus tridenticulato, sinu lato, conspicuo, columella quasi-plicifera. Long. 8, lat. 3 mm.

A very pretty little species, with thickened longitudinal and spiral liræ, beaded at the points of junction.

MANGILIA ADAMANTINA, n.sp. Pl. X, Fig. 18.

M. testa fusiformi, semiteträgona, solidula, alba, anfractibus 6-7, duobus apicalibus albo-lacteis, vitreis, perlævis, his proximo lævi, arcu longitudinaliter gemmato-costulato, cæteris crassicostratis (numero costarum anfractus ultimi circa 11), simul ac spiraliter arcu multiliratis, supra medium unicarinatis, apertura oblongo-ovata, labro crassiusculo, intus interdum ochro-marginato, columella fere recta, canali brevi. Long. 4, lat. 1.50 mm.

A minute, somewhat diamond-shaped form, white, once spirally keeled, moderately longitudinally ribbed, and crossed with numerous spiral liræ, somewhat resembling *M. apollinea*, described in this paper, but that species is quite smooth.

MANGILIA AGLATA, n.sp. Pl. X, Fig. 19.

M. testa gracillima, fusiformi, delicata, anfractibus 11-12, quorum apicales 3-4 ochracei, sub lente pulcherrime decussati, cæteris apud suturas impressis, ventricosus, spiraliter tri- vel quatuor-liratis, liris crassis, undique longitudinaliter costatis, costis anfractuum superiorum rudioribus, ultimi numero circa 14, apertura oblonga, labro incrassato, fimbriato, sinu lato sed non profundo, canali producto. Long. 10, lat. 3 mm., spec. maj.; long. 8, lat. 2 mm., spec. min.

¹ Ann. & Mag. Nat. Hist., ser. vi, vol. xiv, p. 161, pl. iii, figs. 7, 8.

² Polyhymnia, the Muse of song.

Hab.—Persian Gulf, Mussandam, 50 fathoms.

A graceful, attenuate species, of the same alliance as *M. obtusicastrata*, Smith, *Polynesiensis*, Reeve, or *Alicia*, M. & Stand., these being all of more abbreviate form. The apex is ochraceous, and beautifully microscopically decussate. Of the two specimens selected as types, the larger is not adult, while its fellow has all the labial characteristics well developed.

MANGILIA APOLLINEA, n.sp. Pl. X, Fig. 20.

M. testa parva, ovato-fusiformi, albida, subnitente, nequaquam striata, anfractibus 5, apicales læves, parvi, cæteris gradatis, lævissimis, undique longitudinaliter costatis, costis crassis, super medium anfractuum conspicue et acute unicarinatis, carina ad juncturam costarum gemmata, apertura oblonga, ad basim angustiore, labro incrassato, extus, supra medium, unigemmato, margine columellari fere recto. Long. 5, lat. 1.75 mm.

A scalate *Mangilia*, white, principally conspicuous for its thickened longitudinal ribs, 9–10 in number on the body-whorl, the interstices quite smooth, one spiral keel alone, a little below the sutures, crossing the ribs at right angles, and at the point of junction bearing a beaded point.

MANGILIA BARBITON,¹ n.sp. Pl. X, Fig. 21.

M. testa gracili, utrinque attenuata, alba, parum nitida, anfractibus 8, apicalibus tribus tumidis, vitreis, cæteris ad suturas multum impressis, supernis parvis, ultimo permagno, undique longitudinaliter costulatis, costulis ad juncturam lirarum spiraliarum arcte gemmulatis, apertura anguste oblonga, labro incrassato, albo, sinu inconspicuo, columella recta, canali paulum producto. Long. 8.50, lat. 3 mm.

A most elegantly formed *Mangilia*, which perhaps might with equal propriety be termed a *Cythara*, very abundant in shell-sand; all dead, but the examples are hardly bleached, and are probably white in life. Slight traces of a yellow peripheral zone are to be noted in some instances.

MANGILIA CALLISTEPHANA, n.sp. Pl. X, Fig. 22.

M. testa angusta, fusiformi, solida, albo-ochracea, anfractibus ad 8, quorum apicales duo nitidi, vitrei, globulosi, cæteris ad suturas impressis, supernis bi-, ultimo tricarinato, carinula superiore præsertim gemmato, gemmis conspicuis, ultimi anfractus circa 12, ultimo infra peripheriam ad basim spiraliarum octolirato, apertura oblonga, labro incrassato, sinu lato sed non profundo, columella fere recta, canali brevi. Long. 6, lat. 2 mm., sp. max.; long. 3, lat. 1 mm., sp. min.

One of the most locally abundant *Pleurotomæ* in the dredged shell-sand; also found in live condition, when it is seen to be pale ochreous white, with a semi-transparent appearance. The specific name is

¹ Barbiton, a stringed instrument.

suggested by the beautiful spiral row of shining gemmæ more particularly decorating the upper of the spiral keels so prominent on the whorls.

MANGILIA KOWEITENSIS, n.sp. Pl. X, Fig. 23.

M. testa anguste fusiformi, minuta, solida, pallide straminea, anfractibus 6, quorum apicales duo albo-vitrei, læves, tertio longitudinaliter multilirato, aliter lævi, nitido, cæteris longitudinaliter costatis, costis rectis, ultimum apud anfractum circa 12, apud basin evanidis, undique spiraliter pauciliratis, liris crassis, ad juncturas costarum gemmatis, apertura anguste oblonga, labro pererasso, albo, supra obscure unidenticulato, columella fere recta, canali brevi. Long. 4.15, lat. 2 mm.

Hab.—Koweit, Persian Gulf, 10 fathoms.

A Cytharoid little species, elegantly formed. Some slight analogy with *M. Fairbanki*, Nevill, or *obeliscus*, Reeve, exists, but our specimens are in every way adult, and much smaller. *Daphnella arcta*, E. A. Sm., from the same locality, is also to some extent comparable.

DAPHNELLA DEA, n.sp. Pl. X, Fig. 24.

D. testa delicata, tenui, albida, ventricosa, fusiformi, anfractibus 8-9, quorum apicales 4 ochracei, pulchre decussati, apice ipso vitreo, lævi, cæteris inflatis, undique pulcherrime et aretissime decussatis, liris longitudinalibus tenuissimis, obliquis, apertura oblonga, labro effuso, tenui, sinu obscuro, canali brevi. Long. 11, lat. 4 mm., sp. max.

Most exquisite in decussating sculpture of the finest character; a thin, almost colourless, and inflated shell, its outer lip hardly exhibiting any sinus. This species is finer-grained than the nearly allied *D. thia*, M. & S., from the same locality, and of different form to the also closely akin *D. buccinulum*, M. & S.

DAPHNELLA LUCASII, n.sp. Pl. X, Fig. 25.

D. testa inflata, fusiformi, tenui, parum nitida, obscure brunneo-maculata, anfractibus 9, quorum apicales 4, apice ipso parvo, tribus huic proximis sub lente pulcherrime decussatulis, cæteris valde ventricosis, spiraliter distincte acutiliratis, liris apud penultimum 7, ultimi anfractus 18, intervallis imparibus, undique irregulariter longitudinaliter lirato-costatis, costulis ad ultimum persæpe evanidis, apertura rotundo-ovata, labro tenuissimo, effuso, canali paullum recurvo, paullum producto. Long. 10, lat. 4.50 mm.

The conspicuous spiral liræ extending at unequal intervals over the whole surface of the lower whorls, almost unbroken on the ventricose body-whorl, while crossed frequently above by irregular liral riblets on the upper whorls, distinguish this little *Daphnella* from its congeners. It is slightly like *D. teres*, Forbes, in general form, or *D. marmorata*, Hinds. I have pleasure in connecting with it the

name of Mr. B. R. Lucas, who first found it, with some other interesting forms, in shell-sand from the station given above.

ACTÆON PULCHRIOR, n.sp. Pl. X, Fig. 26.

M. testa rotundo-ovata, vel oblonga, dolioliformi, tenui, delicata, albo-lactea, vel pallide fusca, subcrystallina, anfractibus 5, apice obtuso, globulari, apud suturas compressis, ventricosulis, undique arcate spiraliter sulcatis, sub lente forti longitudinaliter tenuissime et oblique striatulis, apertura ovata, labro tenui, columella paulum incrassata, nitida, vix plicata. Long. 3.50, lat. 1.75 mm.

Hab.—Persian Gulf, off Bahrein, 6 fathoms, coral sand.

Variable in form, one specimen being almost round, the majority, however, are oblong, tun-shaped, with remarkably blunt, vitreous, globular apex, the substance subpellucid, milky-white, or suffused with fuscous, whorls five, closely spirally furrowed, and microscopically longitudinally obliquely striolate. The very narrow umbilicus is half concealed by the columellar margin; it is but slightly plaited. Several examples. Allied to *Actæon austrinus*, Watson,¹ from Culebra Island, south West Indies, at 390 fathoms.

RETUSA BYSMA,² n.sp. Pl. X, Fig. 27.

R. testa parva, conico-cylindrica, alba, supra truncatula, longitudinaliter arcissime sulcata, versus apicem sulcis minus conspicuis, lineis scalptis spiraliter superficiem totam circumcingentibus, anfr. 3-4, apertura oblonga, versus basin cochleariformi, labro tenui, fere recto, columella paulum oblique convexa. Alt. 4, diam. 2 mm.

Utriculus famelicus, Watson, seems the nearest ally to this little species, which is basally broader in proportion, that being a most attenuate shell. The longitudinal lines of growth and deeply seated crown are similar in both.

CYLICHNA PITHISCUS,³ n.sp. Pl. X, Fig. 28.

C. testa parva, ovata, compressa, alba, nitida, undique spiraliter arcate tenuiter striatula, apertura oblonga, supra angustiore, infra paululum effusa, labro tenui, columella versus basin effusa, simplice. Alt. 2.75, diam. 1.30 mm.

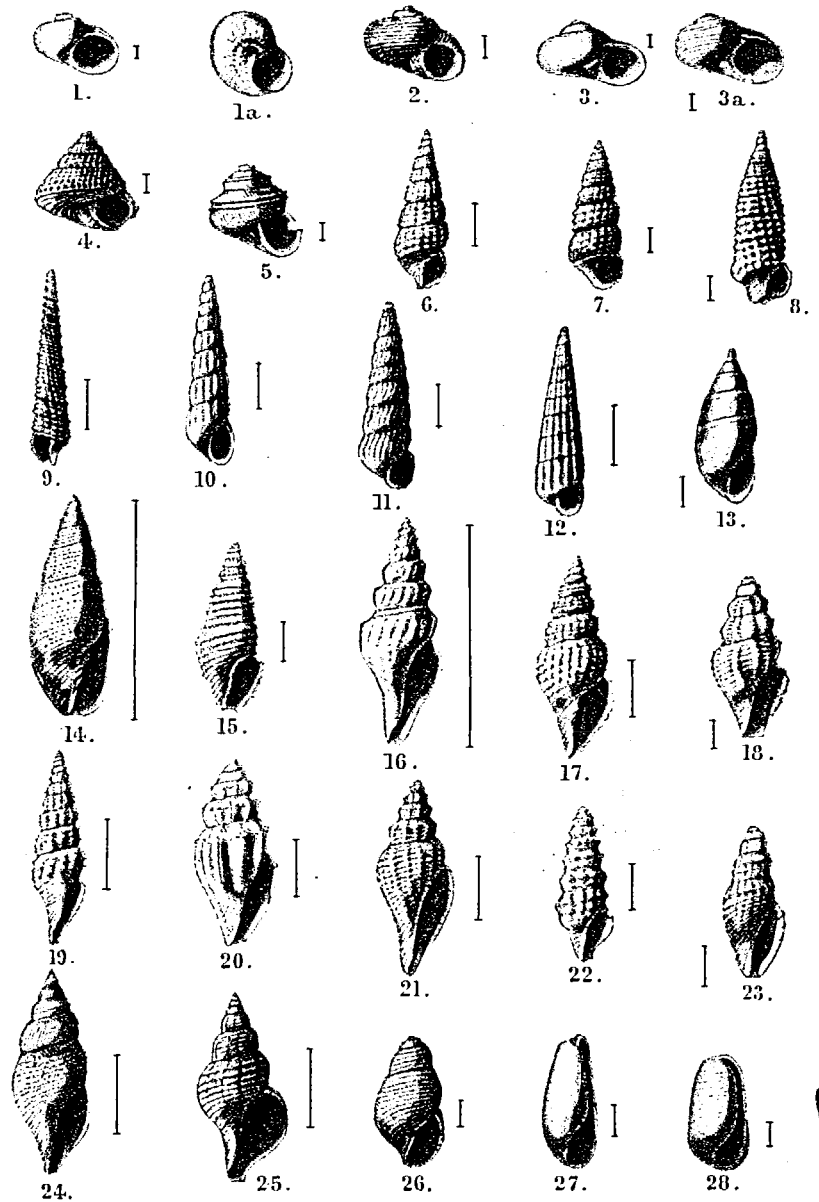
A good many examples of a small, white little species, slightly compressed laterally, oval in form, regularly spirally very minutely striolate, there being no pitting or delicate punctuation, as exists in the nearly allied *C. crenilabris*, M. & S.,⁴ from the same locality, but irregular longitudinal striae cross the spiral lines.

¹ Rep. Challenger Exped., vol. xv, p. 628, pl. xlvii, fig. 2.

² βύσμα, a bung, or cork, from the form.

³ πιδίσκος, a small barrel.

⁴ Proc. Zool. Soc., 1901, pt. ii, p. 455.



A. T. Hollis del. et lith.

Mintern Bros. imp.

NEW SPECIES OF GASTROPODA FROM THE
PERSIAN GULF, GULF OF OMAN, AND ARABIAN SEA.

EXPLANATION OF PLATE X.

- | | |
|---|---|
| FIGS. 1, 1a. <i>Cyclostrema eumares</i> , n.sp. | FIG. 15. <i>Pleurotoma (Oligotoma) patricia</i> , n.sp. |
| " 2. " <i>eupoietum</i> , n.sp. | " 16. " (<i>Surcula</i>) <i>halicyria</i> , n.sp. |
| " 3, 3a. <i>Ethalia jucunda</i> , n.sp. | " 17. <i>Clathurella Polyhymnia</i> , n.sp. |
| " 4. <i>Basilissa compsa</i> , n.sp. | " 18. <i>Mangilia adamantina</i> , n.sp. |
| " 5. <i>Scissurella Jacksoni</i> , n.sp. | " 19. " <i>Aglaia</i> , n.sp. |
| " 6. <i>Cerithium anembatum</i> , n.sp. | " 20. " <i>apollinea</i> , n.sp. |
| " 7. " <i>pervicax</i> , n.sp. | " 21. " <i>barbiton</i> , n.sp. |
| " 8. <i>Bittium caudatum</i> , n.sp. | " 22. " <i>callistephana</i> , n.sp. |
| " 9. <i>Trifora concatenata</i> , n.sp. | " 23. " <i>Koweitensis</i> , n.sp. |
| " 10. <i>Turbonilla inæqualis</i> , n.sp. | " 24. <i>Daphnella dea</i> , n.sp. |
| " 11. " <i>microperone</i> , n.sp. | " 25. " <i>Lucasii</i> , n.sp. |
| " 12. " <i>recticostata</i> , n.sp. | " 26. <i>Actæon pulchrior</i> , n.sp. |
| " 13. <i>Mucronalia oxytenes</i> , n.sp. | " 27. <i>Retusa bysma</i> , n.sp. |
| " 14. <i>Mitra Townsendi</i> , n.sp. | " 28. <i>Cylichna pithiscus</i> , n.sp. |